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**Re: Response of PJM Interconnection, L.L.C. to Questions for
Stakeholders in Connection with the Economic
Dispatch Study Required by Section 1234 of the
Energy Policy Act of 2005**

Dear Mr. Meyer:

PJM Interconnection, L.L.C. ("PJM") is pleased to provide these responses to your recent inquiry to stakeholders seeking information for consideration in preparation of the Department's Economic Dispatch Study pursuant to section 1234 of the Energy Policy Act of 2005. PJM is the Regional Transmission Organization responsible for the operation of the bulk power electric transmission grid in a 13-state region including the District of Columbia.

PJM provides the following responses to your September 1 inquiry:

- 1) What are the procedures now used in your region for economic dispatch? Who is performing the dispatch (a utility, an ISO or RTO, or other) and over how large an area (geographic scope, MW load, MW generation resources, number of retail customers within the dispatch area)?

PJM Response: PJM, as the Regional Transmission Organization, performs the economic dispatch for the entire RTO footprint, covering a 164,260-square-mile area that includes or parts of Delaware, Indiana, Illinois, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia and the District of Columbia, and serving more than 350 member companies and a population of about 51 million. In July 2005, PJM reached a new peak demand of 135,000 megawatts, and has a generating capacity of 163,806 megawatts. All generators electrically located within the footprint ("electrically" is used here to indicate that even those generators physically located outside the footprint that are dynamically scheduled may be included in the economic dispatch) may submit offers to PJM for supply from their units. These offers may be submitted in three parts: start-up, no-load and marginal energy rate, and generators may choose to submit these offers on the basis of cost or price.

In the Day-Ahead market, PJM utilizes all received offers in a security-constrained unit commitment and dispatch program to produce a day-ahead commitment and hourly energy schedule that minimizes total production cost across the entire footprint. The result of this day-ahead execution is a generation commitment profile, hourly energy schedule for generation, load, transactions, and virtual bids and offers, together with hourly locational prices at every electrical node in the footprint. This information is then posted for market participants. Following the Day-Ahead Market, all generators that were not committed as part of the day-ahead schedule are provided the opportunity to change their offer for use in the Balancing Market; this time between the posting of the Day-Ahead market results and 6 p.m. is called the “re-bid period”. The offers are locked in at 6 p.m. for use in real time operations the following day.

PJM then conducts a Reliability Analysis to ensure that sufficient generation will be available in real time to meet the forecast demand. Any supplemental commitments made in this analysis are done on the basis of minimizing the cost of providing reserves. Owners of units that are committed as part of the Reliability Analysis are contacted individually and provided with the commitment schedule for those units. In real time, PJM then dispatches all available generation based on the energy offer either submitted and accepted in the Day-Ahead Market or revised during the re-bid period. All generation is dispatched on a non-discriminatory basis using an automated, security-constrained economic dispatch program called the Unit Dispatch System (UDS). The UDS calculates an optimal dispatch solution based on the various input data supplied to it such as load forecast, scheduled interchange, the generation offer data, etc. The dispatch solutions are approved about every five minutes by the PJM Generation Dispatcher and transmitted to the generation owners via real-time data links.

- 2) Is the Act’s definition of economic dispatch (see above) appropriate? Over what geographic scale or area should economic dispatch be practiced? Besides cost and reliability, are there any other factors or considerations that should be considered in economic dispatch, and why?

PJM Response: The terms “cost and reliability” are quite broad and addressed throughout this submittal. Within the context of the term “reliability”, PJM notes that economic dispatch must be “security constrained”. In short, in addition to respecting the physical limitations of the generators involved, all transmission system limitations and ratings must be respected. As a result, unit commitment and dispatch algorithms need to represent “security constrained” economic dispatch.

PJM does believe that additional consideration needs to be given to accommodating bilateral and self-scheduling options. Specifically, any

dispatch should allow market participants to make their own economic choices through bilateral transactions or self-scheduling arrangements consistent with reliability requirements. Market participants should be free to exercise their own economic desires through these types of arrangements, but the impacts of these actions on the remainder of the market should be harmonized. For example, if a generation owner self-schedules a particular unit, then that unit could become a “price-taker” and to the extent that unit would otherwise not be dispatched economically, the action should serve to lower the price of energy for the remainder of the market. Internal bilateral transactions, on the other hand, have no impact on the dispatch and should be treated as purely financial arrangements that allow participants to settle their arrangements outside the RTO settlement process.

Concerning the issue of the geographic scope of economic dispatch, the RTOs/ISOs with organized markets have demonstrated that security constrained economic dispatch can be undertaken successfully over very large geographic areas. Presently, the PJM marketplace includes a 164,260-square-mile area that covers all or parts of Delaware, Indiana, Illinois, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia and the District of Columbia. Within the limits of system technology, the larger the area over which economic dispatch is conducted, the more efficient that dispatch becomes. Significant work is underway among the RTOs/ISOs to coordinate aspects of the planning and operation of their markets to ensure maximum benefit to customers including vibrant trading among resources so as to broaden the resources available to each RTO/ISO to develop the least cost security-constrained economic dispatch for its footprint. Perhaps the best example is the development of the PJM/MISO Joint Operating Agreement which is a critical first step in allowing two independent systems to respect each other’s system constraints and operate as a virtual common market.

There have been a number of independent studies done concerning the benefits of economic dispatch. Some of these studies have been undertaken by DOE and FERC. In addition, PJM provides the link to the following independent studies which address, among other things, the benefits of economic dispatch:

Synapse Study: <http://www.pjm.com/documents/downloads/reports/synapse-report-pjm-electricity-prices.pdf>

GDE_Study_-_Report_Summary.pdf
<http://www.globalenergy.com/competitivepower/competitivepower.pdf>

CAEM_study_of_PJM_region.PDF
<http://www.caem.org/website/pdf/PJM.pdf>

3. How do economic dispatch procedures differ for different classes of generation, including utility-owned versus non-utility generation? Do actual operational practices differ from the formal procedures required under tariff or federal or state rules, or from the economic dispatch definition above? If there is a difference, please indicate what the difference is, how often this occurs, and its impacts upon non-utility generation and upon retail electricity users. If you have specific analyses or studies that document your position, please provide them.

PJM Response: In the PJM system, there is no difference whatsoever in the economic dispatch of utility-owned vs. non-utility generation. All generators are considered on a non-discriminatory basis and dispatched according to their economic offer data and physical limitations as part of the security-constrained economic dispatch. Actual procedures do not differ from those prescribed by the PJM Tariff and Operating Agreement.

3) What changes in economic dispatch procedures would lead to more non-utility generator dispatch? If you think that changes are needed to current economic dispatch procedures in your area to better enable economic dispatch participation by non-utility generators, please explain the changes you recommend.

PJM Response: No changes in the PJM economic dispatch procedures would lead to more non-utility generator dispatch. As indicated above, all generators are already considered on a non-discriminatory basis in the PJM economic dispatch algorithms and dispatched according to their economic offers and physical limitations.

4) If economic dispatch causes greater dispatch and use of non-utility generation, what effects might this have – on the grid, on the mix of energy and capacity available to retail customers, to energy prices and costs, to environmental emissions, or other impacts? How would this affect retail customers in particular states or nationwide? If you have specific analyses to support your position, please provide them to us.

PJM Response: Non-discriminatory economic dispatch utilizes the economic advantage from all potential resources, and therefore results in the least expensive total production cost to meet the load. Therefore, retail customers can only benefit from economic dispatch because their suppliers have access to the lowest cost energy possible, and can then pass those savings on to the retail customer through state retail competition programs or through fuel adjustment clauses in bundled states.

States in the PJM region have sought to ensure dispatch of cleaner generation by utilizing PJM's Generator Attributes Tracking system and adopting trading mechanism for environmental certificates to meet mandated state renewable portfolio goals. Economic dispatch complements such systems as the environmental value of a particular form of generation to a buyer (versus other options) can be explicitly identified and factored into its buying decision. Economic dispatch makes this type of bilateral transaction possible by avoiding the difficulties of requiring each buyer to arrange physical delivery of that generation to their load.

- 5) Could there be any implications for grid reliability – positive or negative – from greater use of economic dispatch? If so, how should economic dispatch be modified or enhanced to protect reliability?

PJM Response: As currently occurs in the PJM system, security constrained economic dispatch, when made transparent to the market participants, can greatly enhance, support, and reinforce system reliability. Because the PJM economic dispatch is made transparent to the entire market through the calculation and public posting of Locational Marginal Prices, the value of energy at all locations on the grid is made apparent to the market. By making the value of energy visible at each location, generation owners are provided the financial incentive to follow the PJM economic dispatch instructions from the system operator. These dispatch instructions reflect the optimal dispatch for the system respecting any transmission constraints. This aligns the financial incentives for generators with system reliability needs.

Should you wish to discuss this or need further information, please do not hesitate to contact me.

Very truly yours,

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L.L.C.